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A new species of *Corynesporopsis* from Portugal

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Abstract — *Corynesporopsis iberica* sp. nov. found on the bark of an unidentified plant in Braganza, Portugal, is described and illustrated. It is characterized by an endogenous conidial ontogeny at the reduced internal area of inflated or globose bases of conidiophores, vase-shaped conidiogenous cells, and clavate to sub-cylindrical, (5–)7-septate, brown conidia with truncate bases and rounded apices. A key and illustrations to *Corynesporopsis* species is presented.

Key words — systematics, anamorphic fungi

Introduction

Kirk (1981) erected the genus *Corynesporopsis* for a taxon previously placed in *Corynespora* Güssow, *Corynesporopsis quercicola* (Borowska) P. M. Kirk

(type species). The author remarked as primary characteristics of the genus *Corynesporopsis* the terminal, determinate or rarely with enteroblastic percurrent proliferations, monotretic conidiogenous cells and cylindrical to ellipsoid, euseptate, catenate conidia. Subsequently, eight other species have been added to this genus: *Corynesporopsis antillana* R.F. Castañeda & W.B. Kendr., *C. biseptata* (M.B. Ellis) Morgan-Jones, *C. cylindrica* B. Sutton, *C. inaequiseptata* Matsush., *C. indica* P.M. Kirk, *C. isabelicae* Hol.-Jech., *C. rionensis* Hol.-Jech., and *C. uniseptata* P.M. Kirk. Kirk (1981), Morgan-Jones (1988), Siboe & Kirk (1999), Castañeda et al. (2004), Siqueira et al. (2008), and McKenzie (2010) have noted that the distoseptate, solitary or catenate conidia that are borne through a slightly depressed and evident apical pore of the monotretic conidiogenous cell are distinctive characters of *Corynespora cassiicola* (Berk. & M.A. Curtis) C.T. Wei (the most common species of *Corynespora*). Curiously, during direct isolation of *C. cassiicola* from common leaf lesions on several hosts (*Cucumis sativus* L., *Solanum lycopersicum* L., *Vigna unguiculata* (L.) Walp., and others) only solitary conidia have been observed when the samples are examined directly from the field, but in pure cultures or after incubation in damp chambers, mostly catenate conidia with several enteroblastic cylindrical to doliiform percurrent proliferations of the conidiogenous cells can be observed. In fact, *C. cassiicola* is a variable species that has been described several times as "new" based on small conidial size differences found on specimens collected on different hosts (Morgan-Jones 1988). However, these criteria are not sufficient to warrant recognition as novel species and the names should be reduced to synonyms of *C. cassiicola* (Morgan-Jones 1988). Four other genera — *Briansuttonia*, *Corynesporina*, *Hemicorynespora*, and *Solicorynespora* — that are closely related to *Corynesporopsis* and *Corynespora* based on conidium ontogeny development (monotretic, determinate or sometimes doliiform to percurrent) can be separated by conidial production (solitary, basocatenate, or blastocatenate) and type of septa as circumscribing characters as summarized by Siqueira et al. (2008). During a November 2007 "Flora Micológica Ibérica" survey of microfungi in the Montesinho and Douro Natural Park, Braganza, Portugal, a conspicuous fungus from the genus *Corynesporopsis* was collected. The specimen showed differences from previously described taxa.

Materials and methods

Samples of plant material were collected during a mycological survey in the Montesinho Natural Park, Braganza, Portugal. Individual collections were placed in paper and plastic bags taken to the laboratory and treated according to Castañeda (2005) and Castañeda et al. (2010). Mounts were prepared in polyvinyl alcohol-glycerol (8 g in 100 ml of water, plus 5 ml of glycerol) and measurements made at a magnification of × 1000. Micrographs were obtained with a Zeiss Axioskop 40, Leitz Dialux 20 and a Jeol

JSM-6400 scanning electron microscope using the techniques described previously by Figueras & Guarro (1988).

Fig. 1. *Corynesporopsis iberica*, drawings from holotype (IMI 398785). Conidiophores, conidiogenous cells, and conidia. Scale bar = 10 µm.

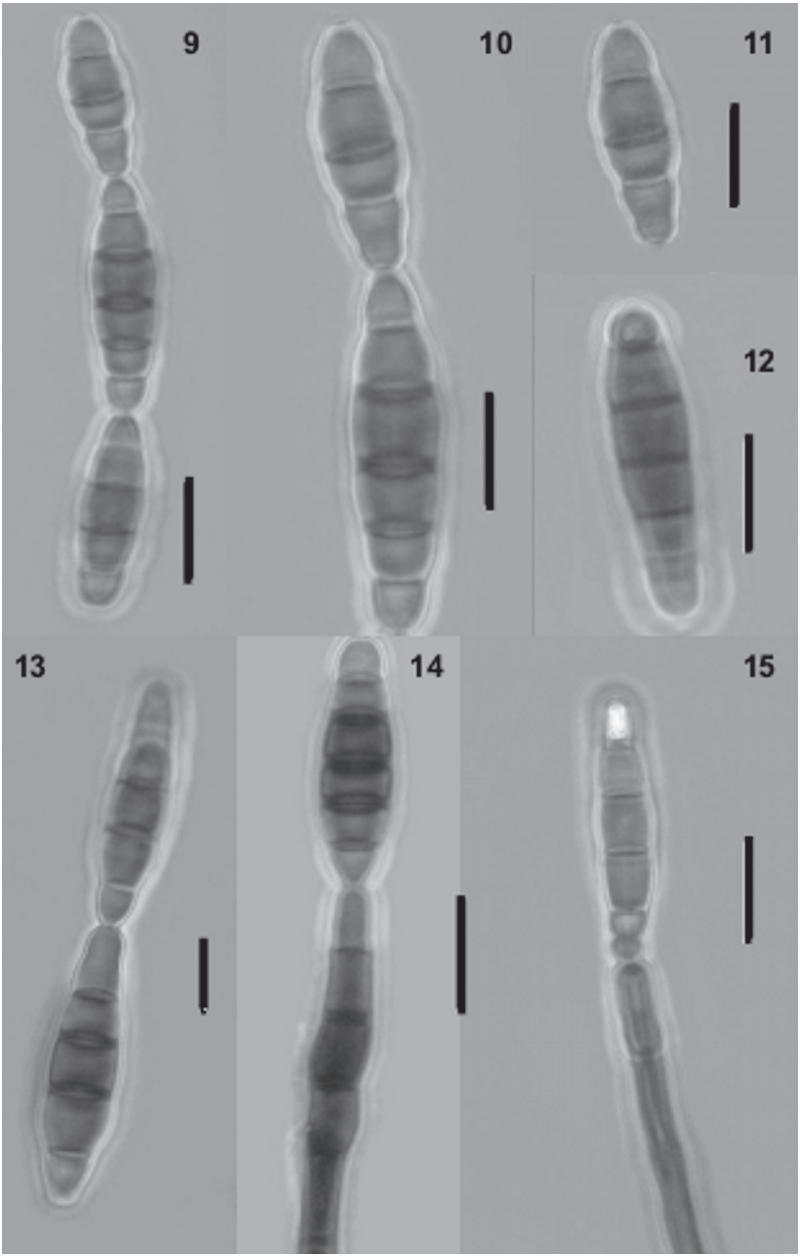
Taxonomy

Corynesporopsis iberica R.F. Castañeda, Silvera, Gené & Guarro, **sp. nov.**

MycoBank MB 518642 Figs 1–8

Coloniae in substrato naturali effusae, pilosae, atrobrunneae vel nigrae. Mycelium plerumque in substrato immersum, ex hyphis septatis, cylindricis, aliquando cum cellulis inflatis, 1.5–2.5 µm diam., laevibus, atrobrunneis, compositum. Conidiophora

Figs. 2–8. *Corynesporopsis iberica*, photomicrographs from holotype (IMI 398785). 2. Conidia. 3–4. Conidiophores and conidiogenous cells. 5–8. photomicrographs (SEM) from culture derived from holotype. Conidiogenous cells and conidiogenous loci. Scale bars (1–4 = 10 μm; 5–8 = 3 μm).



Figs. 9–15. *Corynesporopsis antillana*, photomicrographs from holotype (INIFAT C89/183). 9–13. Conidia. 14–15. Conidiophores and conidiogenous cells. Scale bars = 10 μm.

mononematosa, macronematosa, simplicia, erecta, recta, cylindrica, 4–7-septata, laevia, atrobrunnea, 30–100 × 6–10 µm. Cellulae conidiogenae monotreticae, terminal, determinatae, brunneae, 5–10 × 3.5–5.0 µm, cum parietibus incrassantis circa loco conidiogeno, praeditae. Conidia, cylindrica interdum leviter curvata, plus minusve utrimque rotundata, (2–)3–7-septata, atrobrunnea, laevia, sicca, 15–48(–59) × 3–4 µm, laevia, blastocatenulata. Teleomorphosis ignota.

Type: PORTUGAL. Braganza, Montesinho Natural Park, on bark of an unidentified plant, 14.XI.2007. R.F. Castañeda, C. Silvera & J. Capilla (**Holotype:** IMI 398785; ex-type culture: FMR 9651, CBS).

Etymology: Latin, iberica, in reference to Iberian Peninsula.

Colonies on the natural substrate effuse, hairy, dark brown to black. Mycelium immersed; hyphae septate, branched, cylindrical and sometimes inflated, thickened cells, 1.5–2.5 µm diam., smooth-walled, dark brown. Conidiophores mononematous, macronematous, simple, erect, straight, cylindrical, 4–7-septate, smooth and thick-walled, 30–100 × 6–10 µm, dark brown. Conidiogenous cells monotretic, terminal, determinate, brown, 5–10 × 3.5–5.0 µm, markedly thick-walled around the conidiogenous loci. Conidia cylindrical, straight, sometimes slightly curved, more or less rounded at the ends, (2–)3–7-septate, with septa thick, smooth-walled, dark brown, 15–48(–59) × 3–4 µm, forming dark brown to black, acropetal, unbranched chains. Teleomorph unknown.

Culture from the holotype: Colonies on corn meal agar mixed 1:1 with carrot extract, attaining 20–29 mm after 10 days at 25°C, floccose, pale brown. Reverse brown or cream-olivaceous. Hyphae thick-walled, septate, brown, 2–3 µm diam, smooth-walled. Conidiophores macronematous, cylindrical, multiseptate, smooth, brown, 3–8-septate, up to 160 µm tall, 5–8 µm wide. Conidia cylindrical, (2–)4–6-septate, dark brown to brown, smooth-walled, 15–48 × 3–4 µm, dry, blastocatenulate.

Corynesporopsis iberica slightly resembles *C. cylindrica*, but that species is easily differentiated by its shorter cylindrical conidiophores and brown, 1–2-septate, cylindrical, smooth, 12.5–20.5 × 6–7.5 µm conidia. Two other species with 3–5-septate conidia, *C. antillana* and *C. rionensis*, differ from *C. iberica* in shape and pigmentation.

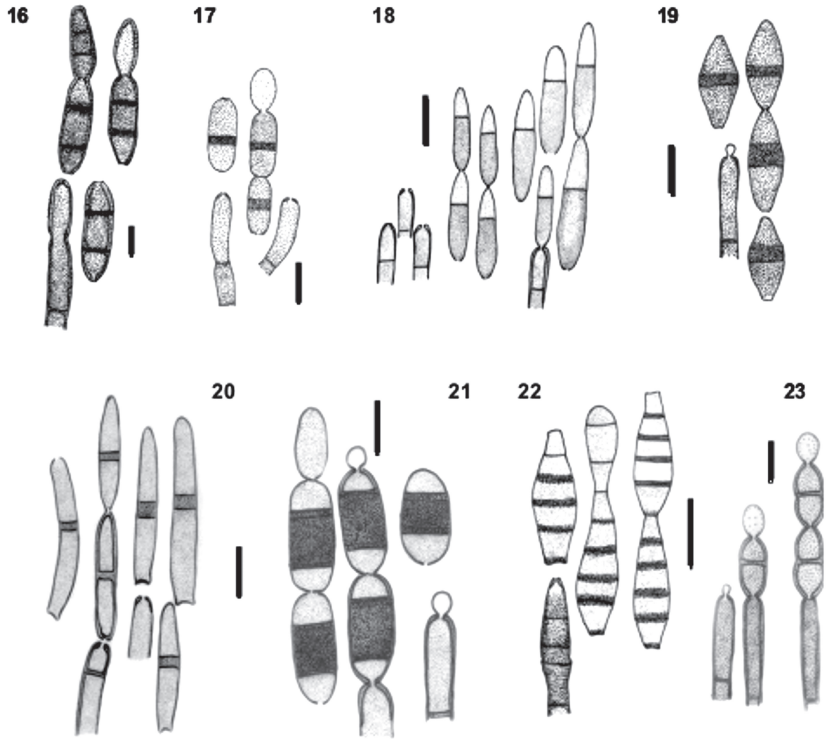
Key to *Corynesporopsis* species

1 Conidia 1-septate 2

Conidia 1-septate, rarely 2-septate, cylindrical, smooth, medium brown, guttulate, 12.5–20.5 × 6.0–7.5 µm . . . . . (Fig. 17) *C. cylindrica*

Conidia with more than 1 septa 3

2(1) Conidia elongate fusiform or navicular, smooth, brown, with the septum dark and thick, 24–43 × 4–6 µm . . . . . (Fig. 20) *C. isabelicae*



Figs. 16–23. *Corynesporopsis* spp., conidiogenous cells and conidia redrawn from the original descriptions. 16. *C. biseptata*. 17. *C. cylindrica*. 18. *C. inaequiseptata*. 19. *C. indica*. 20. *C. isabelicae*. 21. *C. quercicola*. 22. *C. rionensis*. 23. *C. uniseptata*. Scale bars = 10 μm.

Conidia ellipsoid to broadly obovoid, sometimes somewhat biconic, smooth, dark brown to very dark brown, with the septum obscured by a dark band, 14–27 × 8–14 μm ..... (Fig. 19) *C. indica*

Conidia broadly ellipsoid, manifestly constricted at the septum, smooth, brown, often darker at the septum, 12–16 × 5–7 μm ..... (Fig. 23) *C. uniseptata*

Conidia narrowly obclavate, smooth, with brown basal cell and very pale brown apical cell, inequilateral, 17–25 × 4.0–5.5 μm..... ... (Fig. 18) *C. inaequiseptata*

3(1) Conidia usually 2-septate 4

Conidia usually with more than 2 septa.....5

4(3) Conidia broadly ellipsoid to cylindrical, smooth, end cells pale brown, middle cell dark brown, 12–22 × 6–9 μm ..... (Fig. 21) *C. quercicola*

Conidia cylindrical, straight or slightly curved, smooth, pale to mid-brown, with central cell usually slightly longer than end cells, 18–33 × 7–9 μm ..... (Fig. 16) *C. biseptata*

5(3) Conidia fusiform, broad fusiform or ellipsoidal, 3–4(–5)-septate, with septa dark and thick, distinctively truncate at the ends, smooth, brown or dark brown, apical cell pale brown or paler and apical cell of terminal conidium obtuse, 24–36 × 8–11 µm ..... (Fig. 22) *C. rionensis*

Conidia broadly ellipsoidal to navicular, (3–)5(–6)-septate, constricted at the septa, slightly truncate or rounded at the ends, smooth, 3–4 central cells dark brown, septa black, pale brown or colorless at the ends, 21–33 × 5–8 µm ..... (Figs. 9–15) *C. antillana*

Conidia cylindrical, straight, sometimes slightly curved, (2–)3–7-septate, with the septa thick, rounded at the ends, smooth, dark brown, 15–48(–59) × 3–4 µm ..... (Figs. 1–8) *C. iberica*

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